

1 Pollution Control Agency
2 Adopted Permanent Rules Relating to Subsurface Sewage Treatment
3 Systems

4 CHAPTER 7081

5 POLLUTION CONTROL AGENCY

6 MIDSIZED SUBSURFACE SEWAGE TREATMENT SYSTEMS

7 7081.0010 PURPOSE AND INTENT.

8 The proper location, design, installation, use, and
9 maintenance of midsized subsurface sewage treatment systems
10 (MSTS) protects the public health, safety, and general welfare
11 by the discharge of adequately treated sewage to the
12 groundwater. In accordance with the authority granted in
13 Minnesota Statutes, chapters 103F, 103G, 115, and 116, the
14 Pollution Control Agency, hereinafter referred to as the agency,
15 provides minimum environmental protection standards for MSTS as
16 defined in this chapter.

17 These standards shall be adopted countywide and
18 administered and enforced by local units of government as
19 directed by chapter 7082, as published in the State Register,
20 volume 31, page 1079, and as subsequently adopted, and Minnesota
21 Statutes, section 115.55.

22 This chapter does not regulate subsurface treatment systems
23 that do not receive sewage as defined in this chapter. If
24 systems regulated under this chapter receive both sewage and
25 nonsewage, the requirements of this chapter apply, plus any
26 additional requirements governing the nonsewage portion of the
27 wastewater. Systems serving two or more dwellings, systems

1 servicing other establishments that serve over 20 persons, and
2 systems receiving nonsewage are also regulated under Code of
3 Federal Regulations, title 40, parts 144 and 146.

4 This chapter does not contain design standards for sewage
5 treatment systems that discharge to the ground surface or
6 surface waters. Those systems require a National Pollution
7 Discharge Elimination Systems permit.

8 Primarily, this chapter provides measurable performance
9 outcomes for MSTs, but this chapter also includes limited
10 design, construction, inspection, and operational standards that
11 are believed to reasonably protect surface water, groundwater,
12 public health, safety, general welfare, and the environment.

13 In conjunction with these standards, the agency encourages
14 the use of advanced treatment methods and waste reduction to
15 further reduce the discharge of contaminants.

16 Other chapters that have a bearing on MSTs are standards
17 for individual subsurface sewage treatment systems in chapter
18 7080, administrative requirements for subsurface sewage
19 treatment systems local permit and inspection programs in
20 chapter 7082, as published in the State Register, volume 31,
21 page 1079, and as subsequently adopted, and certification and
22 licensing requirements for those who design, install, inspect,
23 maintain, or operate subsurface sewage treatment systems and
24 product registration in chapter 7083, as published in the State
25 Register, volume 31, page 1088, and as subsequently adopted.

26 7081.0020 DEFINITIONS.

27 Subpart 1. Certain terms. In addition to the definitions

1 in chapters 7080, 7082, and 7083, as published in the State
2 Register, volume 31, pages 1025, 1079, 1088, and as subsequently
3 adopted, and Minnesota Statutes, section 115.55, which are
4 incorporated by reference, the terms used in this chapter have
5 the meanings given them. For the purposes of this chapter, if a
6 term used in this chapter is defined in chapter 7080, 7082, or
7 7083, as published in the State Register, volume 31, pages 1025,
8 1079, and 1088, and as subsequently adopted, it shall apply to
9 MSTs and other SSTs if referenced in later chapters. Certain
10 terms or words used in this chapter must be interpreted as
11 follows: the words "shall" and "must" are mandatory and the
12 words "should" and "may" are permissive. All distances
13 specified in this chapter are horizontal distances unless
14 otherwise specified.

15 Subp. 2. Capillary fringe. "Capillary fringe" means the
16 soil layer directly above a saturated layer in which the pore
17 spaces are nearly filled with water as water is drawn upward due
18 to adhesive and cohesive forces.

19 Subp. 3. Groundwater mound. "Groundwater mound" means the
20 rise in height of the seasonally periodically saturated soil or
21 regional water table caused by the addition of sewage effluent
22 from a subsurface sewage treatment system into the soil.

23 Subp. 4. **Midsized subsurface sewage treatment systems**
24 system or **MSTS**. "Midsized subsurface sewage treatment **systems**
25 system" or "MSTS" means a an individual sewage treatment and
26 dispersal system, or part thereof, as set forth in Minnesota
27 Statutes, sections 115.03 and 115.55, that employs sewage tanks

1 or other treatment devices with final discharge into the soil
2 below the natural soil elevation or elevated final grade. ~~MSTS~~
3 ~~are systems and that is~~ designed to receive sewage from:

4 ~~A. four or more dwellings with an average daily~~
5 ~~sewage flow from all dwellings not to exceed 10,000 gallons per~~
6 ~~day.~~

7 ~~B. other establishments with an average daily sewage~~
8 ~~flow of greater than 2,500 gallons per day and less than or~~
9 ~~equal to 10,000 gallons per day, or~~

10 ~~C. a combination of other establishments and~~
11 ~~dwellings with an average daily sewage flow of greater than~~
12 ~~2,500 gallons per day and less than or equal dwellings or other~~
13 ~~establishments with a design flow of greater than 5,000 gallons~~
14 ~~per day to 10,000 gallons per day.~~

15 Average daily sewage Design flows must be determined by
16 part 7081.0110. MSTS also includes on-lot septic
17 tanks ~~discharging to a sewage collection system and,~~ holding
18 tanks, and privies that serve these same facilities but does not
19 include any pump tanks used in a sewage collection system. MSTS
20 does not include those components defined as plumbing under
21 chapter 4715 or sewage collection systems.

22 Subp. 5. NPDES permit. "NPDES permit" means a national
23 pollutant discharge elimination system permit issued by the
24 agency.

25 Subp. 6. Other establishment. "Other establishment" means
26 any public or private structure other than a dwelling that
27 generates sewage that discharges to an MSTS.

1 ~~Subp. 7. Sewage collection system. "Sewage collection~~
 2 ~~system" means the piping, lift stations, and other means,~~
 3 ~~devices, or components that receives and conveys sewage to the~~
 4 ~~inlet of a common sewage tank. Sewage collection system does~~
 5 ~~not include the piping, or other means, devices, or components~~
 6 ~~that are regulated under chapter 4715.~~

7 Subp. 8 7. SDS permit. "SDS permit" means a state
 8 disposal system permit issued by the agency.

9 Subp. 9 8. Well capture zone. "Well capture zone" means
 10 the surface and subsurface area that supplies water to a water
 11 supply well.

12 7081.0040 STATE REGULATION.

13 Subpart 1. Agency regulation.

14 A. All MSTs must be designed and operated according
 15 to this chapter, except as modified through an ordinance in
 16 compliance with chapter 7082, as published in the State
 17 Register, volume 31, page 1079, and as subsequently adopted, and
 18 Minnesota Statutes, section 115.55. All MSTs must be designed,
 19 installed, inspected, pumped, and operated by licensed
 20 businesses meeting the qualifications in chapter 7083, as
 21 published in the State Register, volume 31, page 1088, and as
 22 subsequently adopted. All MSTs must conform to applicable state
 23 statutes and rules.

24 B. When a single SSTS, or group of SSTS under single
 25 ownership within one-half mile of each other, are designed to
 26 treat ~~an average daily~~ a design flow greater than 10,000 gallons
 27 per day, the owner or owners shall make application for and

1 obtain an SDS permit from the agency in accordance with chapter
2 7001. If the measured daily flows for a consecutive seven-day
3 period exceed 10,000 gallons per day, an SDS permit is required.

4 C. An SDS permit ~~may-be~~ is required for any
5 subsurface sewage treatment system or group of subsurface sewage
6 treatment systems that the commissioner ~~has-determined-may~~
7 determines has the potential or an increased potential to cause
8 adverse public health or environmental impacts if not regulated
9 under a state permit. Conditions for these ~~discretionary~~
10 permits include, ~~but-are-not-limited-to,~~ systems in
11 environmentally sensitive areas, unsubstantiated or unexpected
12 flow volumes, and systems requiring exceptional operation,
13 monitoring, and management.

14 D. Flow amounts to calculate whether an SDS permit is
15 required must be determined according to part 7081.0110. The
16 highest calculated value of the various methods in Table I under
17 part 7081.0130, subpart 1, must be used to make this
18 determination, with no reduction allowed. An SDS permit is not
19 required if a factor of safety is added to the design flow that
20 results in a design flow that is in excess of the SDS permit
21 threshold.

22 Subp. 2. Other state regulations.

23 A. MSTs must conform to all applicable state statutes
24 and rules.

25 B. MSTs serving establishments licensed or regulated
26 by the state of Minnesota, or MSTs owned by the state of
27 Minnesota, must conform to this chapter.

1 7081.0050 FEDERAL REGULATION.

2 A. All subsurface sewage treatment systems serving
3 two-family dwellings or larger and systems serving other sewage
4 generating establishments that serve more than 20 people are
5 regulated by the United States Environmental Protection Agency
6 as Class V injection wells under Code of Federal Regulations,
7 title 40, parts 144 and 146. ~~Systems-designed-under-this~~
8 ~~chapter-may-require-additional-design-requirements-under~~ Code of
9 Federal Regulations, title 40, parts 144 and 146, prescribe
10 additional design regulations applicable to certain systems
11 designed under this chapter. In addition, single-family
12 dwellings systems that receive nonsewage wastewater are
13 regulated by these federal regulations. All systems that
14 receive hazardous wastes are regulated by the United States
15 Environmental Protection Agency as Class IV injection wells.
16 Disposal of hazardous waste must be according to state and
17 federal regulations.

18 B. The owner or owner's agent of a system classified
19 as a Class V injection well shall submit to the commissioner of
20 the Pollution Control Agency and the United States Environmental
21 Protection Agency the inventory information specified in Code of
22 Federal Regulations, title 40, section 144.26.

23 C. All septage generated from MSTs must be treated
24 and dispersed according to applicable standards for septage in
25 Code of Federal Regulations, title 40, part 503, and any local
26 requirements.

1 7081.0060 LOCAL REGULATION.

2 MSTS must be regulated under local ordinances in compliance
3 with this chapter as described in Minnesota Statutes, section
4 115.55. Local administrative requirements for design review,
5 construction permit issuance, construction inspections, variance
6 procedures, enforcement, operational requirements, and other
7 administrative processes must be according to chapter 7082, as
8 published in the State Register, volume 31, page 1079, and as
9 subsequently adopted.

10 7081.0070 VARIANCE PROCEDURES.

11 Parts 7081.0080 to ~~7081.0310~~ 7081.0300 are provided to be
12 incorporated into a local ordinance according to chapter 7082,
13 as published in the State Register, volume 31, page 1079, and as
14 subsequently adopted, and Minnesota Statutes, section 115.55.
15 Variance requests to these design standards as adopted into
16 local ordinances made by an owner or owner's agent must be
17 issued or denied by the local unit of government. Variances may
18 must not be issued by the local unit of government for the
19 minimal environmental protection outcomes in part 7081.0080,
20 subparts 2 to 5. Variances may be granted to part 7081.0080,
21 subpart 4, item D, subitem (1), for replacement MSTS serving
22 existing dwellings or other establishments.

23 7081.0080 PERFORMANCE AND COMPLIANCE CRITERIA.

24 Subpart 1. General. New construction, replacement, or
25 existing MSTS designed under this chapter ~~or-existing-MSTS~~
26 ~~constructed-before-the-effective-date-of-this-chapter~~ are

1 considered conforming if they meet the requirements of this part.
2 Existing MSTs constructed before the effective date of this
3 chapter are considered conforming if they meet the requirements
4 of this part, except for subpart 4, items D and E.

5 Subp. 2. Treatment required. All sewage discharged from a
6 dwelling or other establishment not served by a system issued a
7 permit containing effluent and discharge limits or specific
8 monitoring requirements by the agency must be treated according
9 to local ordinances that comply with this chapter, chapter 7082,
10 as published in the State Register, volume 31, page 1079, and as
11 subsequently adopted, and Minnesota Statutes, section 115.55.

12 Subp. 3. Public health and safety; imminent threat.

13 A. To be in compliance, all MSTs must:

14 (1) have treatment processes and devices that do
15 not allow sewage or sewage effluent contact with humans,
16 insects, or vermin;

17 (2) disperse sewage effluent into soil or sand
18 below final grade, with the effluent remaining below final
19 grade;

20 (3) not discharge to drainage tile, the ground
21 surface, or surface water or back up sewage into dwellings or
22 other establishments;

23 (4) treat and disperse sewage effluent in a safe
24 manner, including protection from physical injury and harm; and

25 (5) not have received hazardous material.

26 B. MSTs may must be deemed an imminent threat to
27 public health or safety for noncompliance with item A and any

1 other condition that poses an imminent threat as determined by a
2 qualified employee MSTS inspector or licensed MSTS inspection
3 business.

4 Subp. 4. Groundwater protection. To be in compliance, all
5 MSTS must:

6 A. maintain a zone of unsaturated soil between the
7 bottom of the soil treatment and dispersal system and the
8 ~~seasonally~~ periodically saturated soil or bedrock during loading
9 of effluent, as described in part 7081.0270, subpart 7 8;

10 B. not be seepage pits, cesspools, drywells, leaching
11 pits, sewage tanks, and treatment vessels that observably leak
12 below the designated operating depth;

13 C. not allow viable fecal organisms to contaminate
14 underground waters or zones of seasonal saturation;

15 D. employ nitrogen reduction processes that reduce
16 nitrogen contribution to groundwater as determined in subitem
17 (1) or (2):

18 (1) if the discharge from an MSTS will impact
19 water quality of an aquifer, as defined in part 4725.0100,
20 subpart 21, the effluent from an MSTS, in combination with the
21 effective recharge to the groundwater, must not exceed a
22 concentration of total nitrogen greater than 10 mg/l at the
23 property boundary or nearest receptor, whichever is closest; and

24 (2) if the discharge from an MSTS will not impact
25 water quality of an aquifer, as defined in part 4725.0100,
26 subpart 21, best management practices developed by the
27 commissioner to mitigate water quality impacts to groundwater

1 must be employed; and

2 E. not exceed a groundwater discharge of phosphorus
3 to a surface water that exceeds the phosphorus standard to the
4 receiving water.

5 Subp. 5. Other conformance. To be in compliance, MSTs
6 must meet the requirements of items A and B.

7 A. All methods and devices used to treat and disperse
8 sewage must be designed to conform to all applicable federal,
9 state, and local regulations.

10 B. Systems no longer in use must be abandoned
11 according to part 7080.2500, as published in the State Register,
12 volume 31, page 1062, and as subsequently adopted.

13 Subp. 6. System operation. To be in compliance, an MSTs
14 must meet performance standards and be operated and managed
15 according to its operating permit and management plan, as
16 described in part 7081.0290. To be in compliance, an MSTs
17 designed before the effective date of this part must be operated
18 according to applicable requirements of part 7080.2450, as
19 published in the State Register, volume 31, page 1061, and as
20 subsequently adopted.

21 Subp. 7. Compliance criteria for systems receiving
22 replacement components. Components of existing MSTs that cause
23 noncompliance must be repaired or replaced. The repaired or
24 replacement components must meet technical standards and
25 criteria in parts 7081.0110 to 7081.0280. The remaining
26 components of the existing system must comply with subparts 2 to
27 5, including subpart 4, item D, if constructed after the

1 effective date of this chapter.

2 Subp. 8. Upgrade requirements.

3 A. MSTs in compliance with this part shall be issued
4 a certificate of compliance. Systems found not in compliance
5 shall be issued a notice of noncompliance.

6 B. MSTs issued a notice of noncompliance based on
7 criteria in subpart 3 shall be repaired or replaced within ten
8 months or as directed by Minnesota Statutes, chapter 145A,
9 whichever is most restrictive.

10 C. MSTs issued a notice of noncompliance based on
11 criteria in subpart 4 or 5 shall be repaired or replaced
12 according to local ordinance requirements.

13 D. Systems issued a notice of noncompliance based on
14 criteria in subpart 6 must immediately be maintained, monitored,
15 or managed according to the operating permit.

16 7081.0100 PROFESSIONAL REQUIREMENTS.

17 Systems must be designed, installed, inspected, operated,
18 and maintained by appropriately licensed businesses and
19 certified individuals according to chapter 7083, as published in
20 the State Register, volume 31, page 1088, and as subsequently
21 adopted, and other applicable requirements.

22 7081.0110 SEWAGE FLOW DETERMINATION.

23 The average-daily design flow is the combined values
24 determined in parts 7081.0120, 7081.0130, and 7081.0140.

25 7081.0120 AVERAGE-DAILY DESIGN FLOW DETERMINATION FOR
26 DWELLINGS.

1 Subpart 1. Sum of average-daily design flow for four-to
 2 ten existing dwellings. The average-daily design flow for MSTs
 3 serving four-to-ten existing dwellings is ~~the-sum-of-the-average~~
 4 ~~daily-flows-for-all-individual-dwellings-as~~ determined in by the
 5 following calculation in conjunction with part 7080.1850, as
 6 published in the State Register, volume 31, page 1043, and as
 7 subsequently adopted:

8 the total flow from the ten highest flow dwellings +
 9 (total flow from the remaining dwellings * 0.45)

10 ~~Subp. 2.--Sum-of-average-daily-flow-for-11-existing~~
 11 ~~dwellings-to-10,000-gallons-per-day.--The-average-daily-flow-for~~
 12 ~~MSTs-serving-11-existing-dwellings-to-flow-from-existing~~
 13 ~~dwellings-not-exceeding-10,000-gallons-per-day-is-determined-in~~
 14 ~~part-7080.1850,--as-published-in-the-State-Register,--volume-31,~~
 15 ~~page-1043,--and-as-subsequently-adopted.--Classification-I~~
 16 ~~dwellings-may-be-considered-Classification-II-dwellings.~~

17 Subp. 3 2. New housing developments. For new housing
 18 developments, the developer shall determine and restrict the
 19 total number of bedrooms for the development and determine the
 20 average-daily design flow by multiplying the total number of
 21 bedrooms by 150-gallons-for-MSTs-serving-four-to-ten-proposed
 22 dwellings-and-by 110 gallons per bedroom for-MSTs-serving-11-or
 23 more-proposed-dwellings. If the ultimate development of phased
 24 or segmented growth meets or exceeds the thresholds in part
 25 7081.0040, subpart 2 1, item B, the initial system or
 26 systems and all subsequent systems require a state disposal
 27 system permit.

1 Subp. 4 3. Additional capacity. If construction of
 2 additional dwellings or bedrooms, installation of additional
 3 water-using devices, or other factors likely to increase the
 4 flow volumes can be reasonably anticipated, the MSTS must be
 5 designed to accommodate the additional capacity as determined by
 6 the local unit of government.

7 7081.0130 FLOW AND WASTE CONCENTRATION DETERMINATION FOR OTHER
 8 ESTABLISHMENTS.

9 Subpart 1. Method. Average-daily Design flows for other
 10 establishments are determined by methods in item A or B.

11 A. The average-daily design flow of sewage for MSTS
 12 serving other establishments is estimated using Table I.

13 TABLE I

14 ESTIMATED DESIGN SEWAGE FLOW FROM
 15 OTHER ESTABLISHMENTS

| 16 | 17 Dwelling units | 18 Unit | 19 Average |
|----|-------------------------|-----------------------------|-------------------------------|
| 20 | 21 (also see outdoor | | 22 daily |
| 23 | 24 recreation) | | 25 Design |
| 26 | | | 27 flow (gal/ 28 day/unit) |
| 29 | 30 Hotel or luxury | 31 guest | 32 55 |
| 33 | 34 hotel | 35 square foot | 36 0.28 |
| 37 | 38 Motel | 39 guest | 40 38 |
| 41 | | 42 square foot | 43 0.33 |
| 44 | 45 Rooming house | 46 resident | 47 45 |
| 48 | | 49 add for each nonresident | 50 3.3 |
| 51 | | 52 meal | |
| 53 | 54 Daycare (no meals) | 55 child | 56 19 |
| 57 | 58 Daycare (with meals) | 59 child | 60 23 |

| | | | |
|----|-----------------------|---------------------------|------|
| 1 | | | |
| 2 | Dormitory | person | 43 |
| 3 | | | |
| 4 | Labor camp | person | 18 |
| 5 | | | |
| 6 | Labor camp, | employee | 50 |
| 7 | semipermanent | | |
| 8 | | | |
| 9 | Commercial/Industrial | | |
| 10 | | | |
| 11 | Retail store | square foot | 0.13 |
| 12 | | | |
| 13 | | customer | 3.8 |
| 14 | | | |
| 15 | | toilet | 590 |
| 16 | | | |
| 17 | Shopping center | employee | 11.5 |
| 18 | | | |
| 19 | | square foot | 0.15 |
| 20 | | | |
| 21 | | parking space | 2.5 |
| 22 | | | |
| 23 | Office | employee/8-hour shift | 18 |
| 24 | | | |
| 25 | | square foot | 0.18 |
| 26 | | | |
| 27 | Medical office* | square foot | 1.1 |
| 28 | | | |
| 29 | | practitioner | 275 |
| 30 | | | |
| 31 | | patient | 8 |
| 32 | | | |
| 33 | Industrial building* | employee/8-hour shift | 17.5 |
| 34 | | | |
| 35 | | employee/8-hour shift | 25 |
| 36 | | with showers | |
| 37 | | | |
| 38 | Laundromat | machine | 635 |
| 39 | | | |
| 40 | | load | 52.5 |
| 41 | | | |
| 42 | | square foot | 2.6 |
| 43 | | | |
| 44 | Barber shop* | chair | 68 |
| 45 | | | |
| 46 | Beauty salon* | station | 285 |
| 47 | | | |
| 48 | Flea market | nonfood vendor/space | 15 |
| 49 | | | |
| 50 | | limited food vendor/space | 25 |
| 51 | | | |
| 52 | | with food vendor/space | 50 |
| 53 | | | |
| 54 | Eating and drinking | | |

| | | | |
|----|------------------------------|------------------|-----|
| 1 | establishments | | |
| 2 | | | |
| 3 | Restaurant (does | meal without | 3.5 |
| 4 | not include bar | alcoholic drinks | |
| 5 | or lounge) | | |
| 6 | | | |
| 7 | | meal with | 8 |
| 8 | | alcoholic drinks | |
| 9 | | | |
| 10 | | seat (open 16 | 30 |
| 11 | | hours or less) | |
| 12 | | | |
| 13 | | seat (open more | 50 |
| 14 | | than 16 hours) | |
| 15 | | | |
| 16 | | seat (open 16 | 20 |
| 17 | | hours or less, | |
| 18 | | single service | |
| 19 | | articles) | |
| 20 | | | |
| 21 | | seat (open more | 35 |
| 22 | | than 16 hours, | |
| 23 | | single service | |
| 24 | | articles) | |
| 25 | | | |
| 26 | Restaurant (short | customer | 7 |
| 27 | order) | | |
| 28 | | | |
| 29 | Restaurant (drive- | car space | 30 |
| 30 | in) | | |
| 31 | | | |
| 32 | Restaurant (carry | square foot | 0.5 |
| 33 | out, including | | |
| 34 | caterers) | | |
| 35 | | | |
| 36 | Institutional meals | meal | 5.0 |
| 37 | | | |
| 38 | Food outlet | square foot | 0.2 |
| 39 | | | |
| 40 | Dining hall | meal | 8.5 |
| 41 | | | |
| 42 | Coffee shop | customer | 7 |
| 43 | | | |
| 44 | Cafeteria | customer | 2.5 |
| 45 | | | |
| 46 | Bar or lounge | customer | 4.5 |
| 47 | (no meals) | | |
| 48 | | seat | 36 |
| 49 | | | |
| 50 | Entertainment establishments | | |
| 51 | | | |
| 52 | Drive-in theater | car stall | 5 |
| 53 | | | |
| 54 | Theater/ | seat | 4.5 |

| | | | |
|----|----------------------------|--|------|
| 1 | auditorium | | |
| 2 | | | |
| 3 | Bowling alley | alley | 185 |
| 4 | | | |
| 5 | Country club | member (no meals) | 22 |
| 6 | | | |
| 7 | | member (with meals and showers) | 118 |
| 8 | | | |
| 9 | | | |
| 10 | | member (resident) | 86 |
| 11 | | | |
| 12 | Fairground and | visitor | 1.5 |
| 13 | other similar | | |
| 14 | gatherings | | |
| 15 | | | |
| 16 | Stadium | seat | 5 |
| 17 | | | |
| 18 | Dance hall | person | 6 |
| 19 | | | |
| 20 | Health club/gym | member | 35 |
| 21 | | | |
| 22 | Outdoor recreation and | | |
| 23 | related lodging facilities | | |
| 24 | | | |
| 25 | Campground | person with hook-up | 36 |
| 26 | | | |
| 27 | | site with hook-up | 100 |
| 28 | | | |
| 29 | | site without hook-up, with central bath | 62 |
| 30 | | | |
| 31 | | | |
| 32 | | site to be served by dump station | 14.5 |
| 33 | | | |
| 34 | | | |
| 35 | Permanent mobile | mobile home | 225 |
| 36 | home | | |
| 37 | | | |
| 38 | Camp, day | person | 20 |
| 39 | without meals | | |
| 40 | | | |
| 41 | Camp, day with meals | person | 25 |
| 42 | | | |
| 43 | Camp, day and | person | 45 |
| 44 | night with meals | | |
| 45 | | | |
| 46 | Resort/lodge hotel | person | 62 |
| 47 | | | |
| 48 | Cabin, resort | person | 50 |
| 49 | | | |
| 50 | Retail resort store | customer | 4 |
| 51 | | | |
| 52 | Park or | guest | 10 |
| 53 | swimming pool | | |
| 54 | | | |

| | | | |
|----|--|-------------|------|
| 1 | Visitor center | visitor | 13 |
| 2 | | | |
| 3 | Transportation | | |
| 4 | | | |
| 5 | Gas station/ convenience store | customer | 3.5 |
| 6 | | | |
| 7 | | | |
| 8 | Service station* | customer | 11 |
| 9 | | | |
| 10 | | service bay | 50 |
| 11 | | | |
| 12 | | toilet | 250 |
| 13 | | | |
| 14 | | square foot | 0.25 |
| 15 | | | |
| 16 | Car wash* (does not include car wash water) | square foot | 5 |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | Airport, bus station, rail depot | passenger | 5 |
| 21 | | | |
| 22 | | square foot | 5 |
| 23 | | | |
| 24 | | restroom | 565 |
| 25 | | | |
| 26 | Institutional | | |
| 27 | | | |
| 28 | Hospital* | bed | 220 |
| 29 | | | |
| 30 | Mental health hospital* | bed | 147 |
| 31 | | | |
| 32 | | | |
| 33 | Prison or jail | inmate | 140 |
| 34 | | | |
| 35 | Nursing home, other adult congregate living | resident | 125 |
| 36 | | | |
| 37 | | | |
| 38 | | | |
| 39 | Other public institution | person | 105 |
| 40 | | | |
| 41 | | | |
| 42 | School (no gym, no cafeteria, and no showers) | student | 14 |
| 43 | | | |
| 44 | | | |
| 45 | | | |
| 46 | School (with cafeteria, no gym and no showers) | student | 18 |
| 47 | | | |
| 48 | | | |
| 49 | | | |
| 50 | School (with cafeteria, gym, and showers) | student | 27.5 |
| 51 | | | |
| 52 | | | |
| 53 | | | |
| 54 | School (boarding) | student | 95 |

| | | | |
|----|-----------------|----------------------------|----|
| 1 | | | |
| 2 | Church | seat | 4 |
| 3 | | | |
| 4 | | add for each meal prepared | 5 |
| 5 | | | |
| 6 | Assembly hall | seat | 4 |
| 7 | | | |
| 8 | Miscellaneous | | |
| 9 | | | |
| 10 | Public lavatory | user | 5 |
| 11 | | | |
| 12 | Public shower | shower taken | 11 |
| 13 | | | |

14 * Waste other than sewage may is only allowed to be
 15 discharged into the system if the waste is suitable to be
 16 discharged to ~~a-subsurface-soil-treatment-and-dispersal~~
 17 system groundwater.

18 Unless otherwise noted in Table I, the flow values do not
 19 include flows generated by employees. A flow value of 15
 20 gallons per employee per eight-hour shift must be added to the
 21 flow amount. Average-daily Design flow determination for
 22 establishments not listed in Table I shall be determined by the
 23 best available information and approved by the local unit of
 24 government.

25 B. The measured average-daily design flow of sewage
 26 for MSTs serving other establishments is determined by averaging
 27 the measured daily flows for a consecutive seven-day period in
 28 which the establishment is at maximum capacity or use.

29 Subp. 2. Waste concentration. If concentrations of
 30 biochemical oxygen demands, total suspended solids, and oil and
 31 grease from the sewage are expected to be higher than 175 mg/l,
 32 65 mg/l, or 25 mg/l respectively, an estimated or measured
 33 average concentration must be determined and be acceptable to
 34 the local unit of government. System design must account for

1 concentrations of these constituents so as not to cause internal
2 system malfunction, such as, but not limited to, clogging of
3 pipes, orifices, treatment devices, or media. ~~Waste-strength~~
4 ~~loading-to-soil-treatment-and-dispersal-systems-must-not-exceed~~
5 ~~the-concentration-for-these-constituents-in-excess-of-the-values~~
6 ~~in-Table-III-in-part-7081-0270, subpart-6.~~

7 7081.0140 INFILTRATION.

8 The average-daily design flow must also include 200 gallons
9 of infiltration and inflow per inch of collection pipe diameter
10 per mile per day with a minimum pipe diameter of two inches to
11 be used for the calculation. Flow values may are allowed to be
12 further increased if the system employs treatment devices that
13 are exposed to atmospheric conditions that will infiltrate
14 precipitation. Flow estimates as calculated in this chapter
15 shall not be relied upon for the design of collection systems.

16 7081.0150 NECESSITY OF SOIL AND SITE EVALUATIONS.

17 Soil and site evaluations must be conducted for MSTs
18 design. The evaluations must be conducted according to parts
19 7081.0160 and ~~7081-0170~~ 7081.0200. Evaluations must identify
20 and delineate an initial and replacement soil treatment and
21 dispersal area with appropriate system site boundaries.

22 7081.0160 PRELIMINARY EVALUATION.

23 A preliminary evaluation consists of determining:

24 A. the average-daily design flow and anticipated
25 effluent concentrations of biochemical oxygen demand, total
26 suspended solids, and fats, oils, and grease;

1 B. whether the location of water supply wells may
2 ~~impact~~ impacts the location of the system due to the setback
3 constraints;

4 C. whether buildings or improvements will be within
5 50 feet of the proposed soil ~~treatment~~ dispersal area;

6 D. whether buried water supply pipes will be within
7 50 feet of the proposed system;

8 E. whether easements will be within 50 feet of the
9 proposed system;

10 F. whether the ordinary high water level of public
11 waters will be within 500 feet of the proposed soil treatment
12 and dispersal area and if so, a preliminary assessment of
13 phosphorus impacts to the surface water;

14 G. whether the system will be located in a floodplain
15 and the system location in relation to the 100-year flooding
16 elevation from published data if available or data that is
17 acceptable to the local unit of government;

18 ~~H. whether-designated-wetlands-will-be-within-50-feet~~
19 ~~of-the-proposed-soil-treatment-area-or-whether-a-wetland~~
20 ~~delineation-has-been-conducted-or-is-required-to-be-conducted-on~~
21 ~~the-property;~~

22 ~~I.~~ the required setbacks from the proposed soil
23 treatment and dispersal system;

24 ~~J.~~ I. the soil survey information on the proposed
25 soil dispersal area, including the soil map, map units,
26 landscape position, parent material, flooding potential, slope
27 range, seasonally periodically saturated soil level, depth to

1 bedrock, texture, color, and structure of soil horizons, and
2 permeability of soil horizons;

3 K- J. the legal-description township, range, section
4 number, and other unique property identifiers, as required by
5 the local unit of government, dimensions, and size of the
6 proposed soil treatment area;

7 L- K. the names of property owners; and

8 M- L. the location of the system on a United States
9 Geological Survey quadrangle map of the proposed soil treatment
10 and dispersal area and the area within one mile.

11 7081.0170 FIELD EVALUATION.

12 Subpart 1. Generally. Before conducting a field
13 evaluation, the designer shall confer with the local unit of
14 government to determine the requirements and scope of the
15 evaluation, dependent upon system size, soil conditions, and
16 other applicable factors. At a minimum, the requirements in
17 this part must be met.

18 Subp. 2. Property marks. Property lines must be
19 identified as acceptable to the owner. ~~Let~~ Site improvements,
20 required setbacks, and easements must be identified, located,
21 and marked.

22 Subp. 3. Site area. A general evaluation and description
23 of the proposed soil treatment-and dispersal area, including a
24 general geomorphic description, current land use, and past land
25 use, if known, must be provided.

26 Subp. 4. Surface features. The following surface features
27 must be identified and described:

1 A. the dominant vegetation;

2 B. evidence of disturbed or compacted soil or
3 flooding or run-on potential; and

4 C. landscape position, including landform, slope
5 gradient, slope direction, and surface morphometry as described
6 in the Field Book for Describing and Sampling Soils Version 2.0,
7 September 2002, developed by the National Soil Survey Center and
8 Natural Resources Conservation Service of the United States
9 Department of Agriculture. The field book is incorporated by
10 reference, is not subject to frequent change, and is available
11 through the Minitex interlibrary loan system.

12 Subp. 5. Soil pits.

13 A. The required number of soil pits must be
14 determined by the professional judgment of the designer as based
15 on the size of the area, consistency of the soil, and approved
16 by the local unit of government.

17 ~~B. Soil-borings-may-be-substituted-for-soil-pits-if~~
18 ~~conditions-exist-where-soil-pits-are-not-warranted-as-determined~~
19 ~~by-the-local-unit-of-government.~~

20 C. The qualifying soil pits or borings to be used for
21 the MSTs design must be located ~~within-or~~ on or near the borders
22 of the proposed soil treatment and dispersal area. Soil pits ~~or~~
23 ~~soil-borings~~ must be dug outside the soil dispersal area if
24 possible. The soil must be observed and described to a depth of
25 at least three feet below the proposed depth of the system.
26 Other soil observations may are allowed to be made to supplement
27 the required soil pit information.

1 ~~D~~ C. Underground utilities must be located before
2 soil observations are undertaken. Required safety precautions
3 must be taken before entering soil pits.

4 Subp. 6. Soil description.

5 A. The soil properties and features in subitems (1)
6 to (13) must be described according to Field Book for Describing
7 and Sampling Soil, version 2, Natural Resources Conservation
8 Service, United States Department of Agriculture (September
9 2002), for each soil horizon at each qualifying soil pit or
10 boring. The field book is incorporated by reference under
11 subpart 4, item C.

12 (1) Matrix soil color.

13 (2) Soil features that have different colors from
14 the matrix color, including but not limited to clay films,
15 organic stains, silt coats, nodules, and concretions.

16 (3) Abundance, size, color, and contrast of
17 redoximorphic features.

18 (4) Soil texture, with modifiers.

19 (5) Grade, size, and shape of soil structure.

20 (6) Moist soil consistence.

21 (7) Abundance and size of rock fragments.

22 (8) Abundance and size of roots.

23 (9) Horizon boundary conditions.

24 (10) Parent materials.

25 (11) Pores, quantity and size.

26 (12) Quantity of boulders and tree stumps
27 affecting construction.

1 (13) Any other characteristic or feature that may
2 ~~affect~~ affects permeability of the soil or treatment of sewage
3 effluent.

4 B. The depth of bedrock, if encountered, must be
5 determined by requirements of part ~~7080-0020~~ 7080.1100,
6 subpart ~~6~~ 8, as published in the State Register, volume ...,
7 page, and as subsequently adopted.

8 C. The elevation of standing water evident in any
9 soil pit or ~~bering~~ must be identified.

10 D. The soil must not be described when frozen, at an
11 improper moisture content, or under poor light conditions.

12 Subp. 7. Method. ~~A-method-for-determining-the-soil's~~
13 ~~infiltration-capacity-in-the-absorption-area-and-internal-water~~
14 ~~movement-of-the-soil-beneath-the-system-must-be-employed.---Both~~
15 Hydraulic conductivity testing of the soil must be employed, or
16 ~~other-equivalent-physical-measurement-of-water-movement,~~ along
17 with a soil-morphological determination of the soil's texture,
18 structure, and consistence, ~~must-be-employed~~ to determine the
19 loading rate of effluent to the soil. ~~Soil-sizing-factors-in~~
20 ~~part-7080-2150,-subpart-3,-item-6,-as-published-in-the-State~~
21 ~~Register,-volume-31,-page-1053,-and-as-subsequently-adopted,-are~~
22 ~~recommended-if-the-degree-of-groundwater-mounding-is-found-to-be~~
23 ~~acceptable.~~ The frequency of the observations and measurements
24 must be determined by the professional judgment of the designer,
25 dependent on the variation in soil conditions and the system
26 size, with the frequency of the observations and measurements
27 approved by the local unit of government.

1 Subp. 8. Comparison with soil survey. All field soil
2 information gathered must be compared ~~and-evaluated-against~~ with
3 soil survey information. Any discrepancies shall be
4 identified ~~and-justification-shall-be-provided-for-the~~
5 ~~information-that-was-chosen-for-system-design.~~

6 7081.0180 SOIL INTERPRETATION FOR SYSTEM DESIGN.

7 Subpart 1. Site and soil information. Site and soil
8 information gathered in parts 7081.0160 and 7081.0170 must be
9 interpreted for suitability for MSTs siting, design, and
10 construction, with consideration of the following:

11 A. surface features impacts from precipitation,
12 run-on, and interflow or any other item that could have
13 potential to adversely impact the ability of the soil to accept
14 water;

15 B. cultural features impacts, including, but not
16 limited to, setbacks and easements;

17 C. site conditions affecting system layout,
18 distribution system requirements, and constructability;

19 D. layers of coarse soil textures that affect
20 treatment;

21 E. disturbed, compacted, cut-filled, or other
22 unnatural condition, if present;

23 F. the uniformity of the soil over the site;

24 G. future surrounding land use changes;

25 H. soil sizing factor or loading rate; and

26 I. an approximation of the rise in groundwater from
27 system operation as determined by groundwater mounding

1 calculations. A narrative evaluation of the accuracy of the
2 approximation must be provided. The approximation must be
3 related to the requirements in part 7081.0270, subpart 3, ~~item-B~~
4 6.

5 Subp. 2. Flood fringes. Systems proposed to be located in
6 flood fringes must determine feasibility of relocating the
7 system outside the floodplain.

8 Subp. 3. Depth. The limiting layer in the soil shall be
9 determined based on the depth of bedrock or ~~seasonally~~
10 periodically saturated soil if encountered. The depth to
11 the ~~seasonally~~ periodically saturated soil shall be determined
12 according to part 7080.1720, subpart 5, item E, as published in
13 the State Register, volume 31, page 1042, and as subsequently
14 adopted, and the depth of bedrock shall be as defined under part
15 7080.1100, subpart ~~4~~ 8, as published in the State Register,
16 volume 31, page 1026, and as subsequently adopted.

17 7081.0190 SITE PROTECTION.

18 The proposed soil treatment and dispersal area must be
19 protected from disturbance, compaction, or other damage by
20 staking, fencing, posting, or other effective method.

21 7081.0200 SOIL AND SITE REPORT.

22 All information required in parts 7081.0150 to 7081.0180
23 must be submitted for review and approval by the local unit of
24 government prior to final design. The submittal must also
25 contain:

26 A. a map of the proposed soil treatment-and dispersal

1 area, drawn to scale, showing:

2 (1) features with a setback within 150 feet of
3 the system;

4 (2) easements within 50 feet of the system;

5 (3) floodplains, wetlands, and surface waters,
6 within 100 feet of the system;

7 (4) location and elevation of all soil pits,
8 borings, and hydraulic tests; and

9 (5) two-foot contour lines, ~~unless use of the~~
10 ~~contours are not warranted as determined by the local unit of~~
11 government;

12 B. dates and weather conditions during the field
13 evaluation;

14 C. elevations of the seasonally periodically
15 saturated soil or bedrock;

16 D. proposed depths of the system bottom;

17 E. proposed soil ~~sizing factor or~~ loading rate;

18 F. system site boundaries;

19 G. anticipated construction-related issues;

20 H. name, address, telephone number, and certified
21 statement of the certified individual conducting the site
22 evaluation; and

23 I. a narrative explaining any difficulties
24 encountered during the site evaluation, such as, but not limited
25 to, identifying and interpreting soil and landform features, and
26 how the difficulties were resolved.

27 7081.0210 GROUNDWATER INVESTIGATION.

1 Subpart 1. Necessity of investigation. A preliminary
2 groundwater evaluation must be conducted for all proposed MSTs
3 according to this part.

4 Subp. 2. Preliminary investigation. The following
5 information must be ascertained from the best available
6 information:

7 A. the size of the soil treatment-and dispersal
8 system, proposed loading rate, and system geometry;

9 B. the legal-description township, range, section
10 number, and other unique property identifiers, as required by
11 the local unit of government, of the parcel where the proposed
12 soil treatment-and dispersal area is to be located;

13 C. any anticipated discharges from nondomestic
14 sources to the proposed MSTs;

15 D. the location of the MSTs on a 7.5-minute United
16 States Geological Survey quadrangle topographic map, including
17 the area within a one-mile radius of the proposed soil treatment
18 system;

19 E. a determination of the general geology, shallow
20 groundwater-setting periodic soil saturation, regional
21 groundwater setting, and aquifers used for water supply and a
22 description of the general site hydrology characteristics,
23 including, but not limited to, identification and estimated
24 depth measurements to geologic units and aquifers, and
25 identification of groundwater confining strata;

26 F. a determination whether the proposed system is in
27 a drinking water supply management area, inner wellhead

1 management zone, source water protection area, or groundwater
2 sensitive area;

3 G. an assessment of all water supply wells within a
4 300-foot radius of the proposed soil treatment area with a
5 minimum assessment of well locations and casing depths from well
6 construction log records. If no records exist, the well
7 locations and casing depths must be estimated;

8 H. a determination or estimation of groundwater flow
9 direction; and

10 I. an assessment of nitrogen impacts from the system.

11 Subp. 3. **Field or further investigation.** The designer
12 must consult with the local unit of government to determine
13 whether the local unit of government will require a field or
14 further groundwater investigation and, if so, the extent of the
15 investigation. The field or further investigation must be
16 conducted if information gained in subpart 2 indicates that a
17 proposed system is a potential contaminant threat to a regional
18 water table, an aquifer, or water supply well(s). The threats
19 of concern include, but are not limited to, fecal organism
20 contamination, nitrate contamination, or phosphorus impacts to
21 surface waters.

22 Subp. 4. **Monitoring.** The designer must consult with the
23 local unit of government to determine if the local unit of
24 government will require effluent or groundwater monitoring and,
25 if so, the extent of the monitoring. Monitoring ~~should~~ must be
26 conducted if information gained in subpart 2 or 3 indicates that
27 a proposed system is a potential contaminant threat to a

1 regional water table, an aquifer, or a water supply well or
2 impacts surface waters. The potential groundwater mound height
3 must be monitored under all MSTs during operation.

4 Subp. 5. Hydrological interpretations. The information
5 gathered in this part must be used to estimate or measure if the
6 system adequately protects the groundwater and surface water as
7 prescribed in part 7081.0080, subpart 4. The interpretation
8 must include a-determination an evaluation of whether
9 contaminant plumes may will intersect water supply well capture
10 zones.

11 Subp. 6. Groundwater report. All information required in
12 this part must be submitted for review and approval of the local
13 unit of government prior to final design, including all
14 applicable information delineated on a map.

15 7081.0230 DESIGN STANDARDS.

16 A. The design standards for new construction or
17 replacement MSTs in parts 7081.0240 to 7081.0270 are provided to
18 meet many of the public health and environmental outcomes in
19 part 7081.0080. In some cases, specific engineered methods must
20 be employed in addition to the standards provided in parts
21 7081.0240 to 7081.0270.

22 B. MSTs must not receive storm water or other sources
23 of clean water.

24 C. All structural components of the system and
25 sealants must be designed to ~~meet-or-exceed-a-25-year~~ operate
26 throughout the system's design life.

27 D. A flow measure device must be employed on all MSTs.

1 E. The system must be designed with sufficient access
2 and ports to monitor the system as applicable.

3 F. MSTs must employ components registered under part
4 ~~7080-1600~~ parts 7083.4000 to 7083.4110, as published in the
5 State Register, volume 31 ..., page ~~1032~~, and as
6 subsequently adopted, or have sufficient regulatory oversight in
7 the operating permit.

8 7081.0240 SEWAGE TANKS.

9 Subpart 1. **General.** All holding or treatment tanks or
10 vessels, including lined vessels and grease interceptors serving
11 MSTs, must conform to the applicable requirements of parts
12 ~~7080-1910 to 7080-2020~~ part 7080.1900, as published in the State
13 Register, volume 31, pages page 1044 to 1048, and as
14 subsequently adopted, except as modified in this part or as
15 designed by a professional engineer and approved by the local
16 unit of government.

17 Subp. 2. **Tank capacity.**

18 A. Total septic tank capacity must be in accordance
19 with this item.

20 (1) Total septic tank liquid capacity for a
21 common tank serving multiple dwellings under gravity flow to the
22 common tank are determined by multiplying the average-daily
23 design flow by 3.0.

24 (2) Total septic tank liquid capacity for a
25 common tank serving multiple dwellings under pressure flow to
26 the common tank is determined by multiplying the average-daily
27 design flow by 4.0.

1 (3) Common multiple septic tanks may must be
2 connected in series ~~or multiple tanks may operate in parallel if~~
3 ~~it can be demonstrated that each tank will be loaded within its~~
4 ~~design capacity. No tank connected in series or any compartment~~
5 ~~may have a capacity of less~~ Individual tanks connected in series
6 or any compartment of a tank must have a capacity of more than
7 one-fourth of the required total liquid capacity.

8 B. For MSTs that have individual septic tanks at each
9 dwelling, the individual tanks must meet ~~all~~ the requirements of
10 ~~parts 7080.1910 to 7080.2020~~ part 7080.1900, as published in the
11 State Register, volume 31, pages page 1044 ~~to 1048~~, and as
12 subsequently adopted. Stilling tanks ~~should~~ must be installed
13 between the individual tanks and the next system component as
14 necessary to prevent damage from surging.

15 C. Total septic tank liquid capacity for other
16 establishments with domestic strength waste is determined by
17 multiplying the average-daily design flow by 3.0 if receiving
18 sewage under gravity flow or multiplying the average-daily
19 design flow by 4.0 if receiving sewage under pressure
20 flow. Additional septic tank capacities or equalization tanks
21 with pretreatment may be necessary for high strength waste
22 sources connected to the MSTs.

23 D. Total septic tank liquid capacity prior to other
24 treatment devices shall be according to manufacturer's
25 requirements or accepted standards.

26 E. Holding tanks serving other establishments must
27 provide storage of at least five times the average-daily design

1 flow.

2 Subp. 3. Lint filters, effluent screens, and pressure
3 filters. Effluent screens must be used as the outlet baffle on
4 the final septic tank or pressure filters must be used in the
5 dosing-chamber pump tank if common tanks are employed in series.
6 Alarms must be employed on tanks equipped with effluent
7 screens. Lint filters ~~should-be-used~~ are recommended if the
8 sewage contains laundry waste.

9 Subp. 4. Tank geometry.

10 A. For common septic tanks, the maximum liquid depth
11 of septic tanks to determine liquid capacity must be no greater
12 than 84 inches. ~~Septic-tanks-should-have-a-minimum~~ The
13 ~~length-to-width ratio of-two-to-one-and-a-minimum~~ and the
14 ~~length-to-depth ratio of-3.5-to-one---~~ ~~Tanks-not-meeting-these~~
15 ~~dimensions-should-be-monitored-for-biological-oxygen-demand-and~~
16 ~~total-suspended-solids-concentrations-for-a-period-of-time-as~~
17 ~~determined-by-the-local-unit-of-government~~ must facilitate
18 settling of solids.

19 B. For common septic tanks, the space in the tank
20 between the liquid surface and the top of the inlet and outlet
21 baffles must not be less than 20 percent of the total required
22 liquid capacity.

23 Subp. 5. Tank testing. All tanks used for MSTs must be
24 tested for watertightness according to part 7080.2010, subpart
25 3, as published in the State Register, volume 31, page 1047, and
26 as subsequently adopted. The test shall be conducted to include
27 the watertightness of all connections and risers.

1 Subp. 6. **Liners.** Liners used as watertight barriers for
2 treatment devices must be designed and constructed according to
3 liner requirements developed by the commissioner of the
4 Pollution Control Agency. If conflicts exist between this
5 chapter and those requirements, this chapter applies. Compacted
6 soil liners must not be used as watertight barriers for
7 treatment devices. Liners must be tested and must hold water
8 without loss for 24 hours after being filled to the top of the
9 liner.

10 Subp. 7. **External grease interceptors.** A commercial or
11 institutional food preparation facility such as, but not limited
12 to, a restaurant, cafeteria, or institutional kitchen, served by
13 a system regulated under this chapter, the system design for
14 which was submitted to the local unit of government after the
15 effective date of this part, shall install an external grease
16 interceptor unless other grease control measures are taken and
17 approved by the local unit of government. ~~All-existing~~
18 ~~facilities-described-in-this-subpart-should-install-and-maintain~~
19 ~~an-external-grease-interceptor-or-other-grease-control~~
20 ~~measures.--The-requirements-for-external-grease-interceptors-are~~
21 ~~in-chapter-4715~~ This grease interceptor will be considered part
22 of the SSTS system.

23 7081.0250 DISTRIBUTION OF EFFLUENT.

24 Distribution of effluent into a soil treatment and
25 dispersal system must comply with part 7080.2050, as published
26 in the State Register, volume 31, page 1048, and as subsequently
27 adopted, or be designed by a registered professional engineer

1 and approved by the local unit of government. MSTS should must
2 employ pressure distribution. The distribution system must be
3 designed to dose and rest zones in accordance with operational
4 requirements.

5 7081.0260 DOSING OF EFFLUENT.

6 A. Dosing of effluent into a soil treatment and
7 dispersal system must comply with part 7080.2100, as published
8 in the State Register, volume 31, page 1050, and as subsequently
9 adopted, except as modified in this part.

10 B. The dosing system must either include an
11 alternating two-pump system ~~or~~ and have a minimum total capacity
12 of ~~100~~ 50 percent of the average-daily design flow.

13 C. The pump discharge capacity must be based on the
14 perforations perforation's discharge, with a minimum average
15 head of two feet for 1/4 inch and 3/16 inch perforations and
16 five feet for 1/8 inch perforations.

17 7081.0270 FINAL TREATMENT AND DISPERSAL.

18 Subpart 1. General. Final treatment and dispersal should
19 must be according to applicable design requirements in chapter
20 7080, except as modified in this part. ~~Systems-designed-under~~
21 ~~this-part-may-require-additional-design-requirements-pursuant-to~~
22 Code of Federal Regulations, title 40, parts 144 and 146,
23 prescribe additional design regulations applicable to certain
24 systems designed under this chapter. At a minimum, flow amounts
25 to be used for the purposes of this part must be derived from
26 part 7081.0110.

1 Subp. 2. **Setbacks.** MSTs components must meet the setbacks
 2 in Table II. ~~This chapter does not require a setback to a~~
 3 ~~wetland, but a local setback may exist.~~

4 Table II

5 Minimum Setback Distances (feet)

| 6 Feature | 7 Sewage Tank, 8 Holding Tank, 9 or Sealed 10 Privy | 11 Absorption Area 12 or Sealed 13 Privy | 14 Building 15 Sewer or 16 Sewage 17 Supply 18 Pipes |
|---|--|--|--|
| 19 Water supply 20 wells | 21 * | 22 * | 23 * |
| 24 Buried water 25 lines | 26 * | 27 * | 28 * |
| 29 Buildings** | 30 10 | 31 20 | |
| 32 System site 33 boundaries | 34 10 | 35 10 | |
| 36 The ordinary 37 high water level 38 of public 39 waters | 40 *** | *** | |

40 *Setbacks from buried water pipes and water supply wells are
 41 governed by chapters 4715 and 4725, respectively.

42 **If setbacks are reduced through local administrative
 43 processes, the system shall not be located under or within the
 44 structure.

45 ***Setbacks from lakes, rivers, and streams are governed by
 46 chapters 6105 and 6120.

47 ~~Subp. 3. Soil system sizing and hydraulic performance.~~

48 ~~A. Effluent loading rates to the soil shall not be in~~
 49 ~~excess of the soil's ability to infiltrate and transmit effluent~~
 50 ~~as determined by the observations and measurements in part~~

1 ~~7081.01707-subpart-7-~~

2 ~~B.---The-groundwater-mound-formed-from-an-operating~~
3 ~~MSTP-must-not-infringe-on-the-unsaturated-zone-beneath-the-soil~~
4 ~~system-necessary-to-meet-the-requirements-in-part-7081.0080,~~
5 ~~subpart-47-item-C7-and-for-proper-hydraulic-functioning.~~

6 ~~C.---The-site-of-the-soil-treatment-and-dispersal~~
7 ~~system-derived-from-items-A-and-B-must-be-designed-and~~
8 ~~constructed-with-a-50-percent-increase-in-sizing.---In-addition~~
9 ~~to-that-increase7-a-50-percent-replacement-soil-treatment-and~~
10 ~~dispersal-land-area-must-be-identified-and-protected-for-future~~
11 ~~use-if-necessary.---Replacement-MSTP-proposed-on-sites-that~~
12 ~~cannot-meet-this-requirement-may-be-exempted-by-the-local-unit~~
13 ~~of-government.~~

14 Subp. 4- 3. Minimal soil and site conditions. The site
15 proposed to support the soil treatment and dispersal system must:

16 A. have the upper 12 inches of the absorption area:

17 (1) be original soil;

18 (2) have a ~~size-classification-of-one-to-13~~ soil

19 loading rate of greater than zero as listed in Table IX or IXa,

20 in part 7080.2150, subpart 3, item 6 E, as published in the

21 State Register, volume 31, page 1053, and volume ..., page,

22 and as subsequently adopted; and

23 (3) be above the seasonally periodically

24 saturated soil or bedrock;

25 B. meet the area size requirements in subpart 3 5 and
26 setbacks in subpart 2 and all easements;

27 C. not be a wetland or floodway;

1 D. not be in an area in which surface runoff of
2 precipitations from precipitation will concentrate (swale
3 concave hillslope); and

4 E. allow the system to be placed on contour.

5 Subp. 5- 4. Inspection pipes. Inspection pipes must be
6 located to adequately assess the hydraulic performance of the
7 entire soil treatment-and dispersal system.

8 Subp. 6- 5. Soil loading-requirements absorption area
9 sizing. Loadings-of-sewage-solids-per-square-foot-of-bottom-and
10 side-wall-absorption-area-must-not-be-in-excess-of-the-most
11 limiting-constituent-as-determined-in-Table-III.

12 Table-III

13 Waste-Strength-Loading-Rates

| 14 Soil-Texture | 15 lbs-of-BOD/100 | 15 lbs-of-TSS/100 | 15 lbs-of-oil |
|-----------------|----------------------------|----------------------------|----------------------------|
| 16 Group** | 16 ft ² /day-of | 16 ft ² /day-of | 16 and-grease/100 |
| | 17 total | 17 total | 17 ft ² /day-of |
| | 18 absorption | 18 absorption | 18 total |
| | 19 area* | 19 area* | 19 absorption |
| | | | 20 area* |
| 21 1-and-2 | 21 0.13 | 21 0.049 | 21 0.019 |
| 22 4 | 22 0.086 | 22 0.032 | 22 0.012 |
| 23 3,5, and-6 | 23 0.066 | 23 0.024 | 23 0.009 |
| 24 7-and-9 | 24 0.055 | 24 0.020 | 24 0.008 |
| 25 8,10, and-12 | 25 0.050 | 25 0.018 | 25 0.007 |
| 26 11-and-13 | 26 0.036 | 26 0.014 | 26 0.005 |
| 27 15 | 27 0.026 | 27 0.010 | 27 0.004 |

28 *To-determine-the-loading-to-the-soil-treatment-system,-the
29 following-calculation-must-be-used-

30 Waste-strength-loading-rate-(lbs/ft²/day)--constituent
31 concentration-(ppm)-x-.00000834-x-hydraulic-loading-rate-of
32 total-absorption-area/day-(gal/ft²/day).--The-constituent
33 concentration-for-soil-treatment-and-dispersal-system-design
34 must-be-the-concentration-from-the-pretreatment-device-according

~~1 to-the-device's-product-registration-designation.--Constituent
2 concentration-loading-rate-is-based-on-bottom-and-sidewall
3 absorption-area.~~

~~4 **Soil-textural-groups-can-be-found-in-Table-IX,part-7080.2150,
5 subpart-3, item-F, as-published-in-the-State-Register, volume
6 31, page-1053, and-as-subsequently-adopted.~~

7 A. Effluent loading rates to the soil shall not
8 exceed the soil's ability to infiltrate and transmit effluent as
9 determined by the observations and measurements in part
10 7081.0170, subpart 7, and must be no greater than loading rates
11 prescribed in:

12 (1) part 7080.2150, subpart 3, item E, Table IX
13 or IXa, as published in the State Register, volume 31, page
14 1052, and volume ..., page ..., and as subsequently adopted, if
15 the absorption area receives treatment level C effluent as
16 described in part 7083.4030, as published in the State Register,
17 volume ..., page ..., and as subsequently adopted; or

18 (2) part 7080.2350, subpart 3, Table XII or XIIa,
19 as published in the State Register, volume ..., page ..., and
20 as subsequently adopted, if the absorption area receives
21 effluent meeting treatment levels A or B in part 7083.4030, as
22 published in the State Register, volume ..., page ..., and as
23 subsequently adopted; or

24 (3) part 7080.2400, as published in the State
25 Register, volume 31, page 1061, and as subsequently adopted, if
26 allowed by the local unit of government.

27 B. If the absorption area receives effluent as

1 described in item A, subitem (1), the absorption area shall be
2 increased by 50 percent of the amount derived in item A, subitem
3 (1), and zoned for dosing and resting.

4 Subp. 6. System geometry, lawn area sizing, and
5 groundwater mounding. The system geometry and lawn area sizing
6 shall be sized to prevent groundwater mounding from violating
7 the unsaturated zone beneath the soil system according to
8 subpart 7, for proper hydraulic functioning, and for
9 concentration reduction of nitrogen and phosphorus, if
10 applicable.

11 Subp. 7. Reserve land area. Additional set-aside land
12 area of 100 percent of the size determined in subpart 6 is
13 required for systems whose absorption area receives effluent
14 meeting treatment level A or B in part 7083.4030, as published
15 in the State Register, volume ..., page, and as
16 subsequently adopted, or designed in accordance with part
17 7080.2400, as published in the State Register, volume 31, page
18 1061, and as subsequently adopted. Additional land area of 50
19 percent of the size determined in subpart 6 is required for
20 systems whose absorption area receives treatment level C in part
21 7083.4030, as published in the State Register, volume ..., page
22, and as subsequently adopted. The reserve land area must
23 be identified and protected for future use if necessary.
24 Replacement MSTs proposed on sites that cannot meet this
25 requirement are allowed to be exempted by the local unit of
26 government.

27 Subp. 7- 8. Vertical-separation-distance Soil treatment

1 zone. An-unsaturated-zone-must-be-maintained-between-the-bottom
 2 of-the-soil-treatment-and-dispersal-system-and-the-seasonally
 3 saturated-soil-or-bedrock-during-loading-of-effluent.--This
 4 operating-vertical-separation-distance-must-meet-the-groundwater
 5 protection-objectives-in-part-7081.0080, subpart 4, item C.--The
 6 designed-vertical-separation-distance-shall-take-into
 7 consideration:

8 A:--soil-texture-in-the-treatment-zone;

9 B:--effluent-loading-rate-to-the-soil;

10 C:--effluent-dosing-frequency;

11 D:--system-width-and-depth-as-it-affects-oxygen
 12 transfer-from-the-atmosphere;

13 E:--the-height-of-the-capillary-fringe-in-the
 14 unsaturated-zone;

15 F:--groundwater-mounding;

16 G:--concentrations-of-contaminants-in-the-effluent;

17 H:--hydraulic-head-over-bottom-absorption-area; and

18 I:--factor-of-safety. For treatment of effluent by

19 soil to meet the performance criteria in part 7081.0080, subpart
 20 4, item C, the soil treatment and dispersal systems must meet
 21 the requirements of item A, B, or C.

22 A. For soil treatment and dispersal systems that
 23 receive treatment level C effluent as described in part
 24 7083.4030, as published in the State Register, volume ..., page
 25, and as subsequently adopted, the soil treatment zone
 26 requirements must meet or exceed the requirements of part
 27 7080.2150, subpart 3, item C, as published in the State

1 Register, volume 31, page 1051, and volume ..., page, and
2 as subsequently adopted. The required three-foot vertical
3 separation must be maintained during operation after accounting
4 for groundwater mounding.

5 B. For soil treatment and dispersal systems that
6 receive treatment level A or B effluent as described in part
7 7083.4030, as published in the State Register, volume ..., page
8, and as subsequently adopted, the soil treatment
9 requirements must meet or exceed the requirements of subitems
10 (1) to (4):

11 (1) a minimum vertical depth of the soil
12 treatment and dispersal zone below the distribution media shall
13 be determined according to part 7080.2350, subpart 2, Table XI,
14 as published in the State Register, volume 31, page 1059, and as
15 subsequently adopted, with a minimum vertical separation of two
16 feet. This zone shall meet criteria in units (a) to (c):

17 (a) the zone must be above the periodically
18 saturated soil and bedrock. The zone must be continuous and not
19 be interrupted by seasonal zones of saturation;

20 (b) any soil layers with a sizing texture
21 group of 1 or 4 in Table IX in part 7080.2150, subpart 3, item
22 E, as published in the State Register, volume 31, page 1052, and
23 as subsequently adopted, must not be credited as part of the
24 necessary treatment zone; and

25 (c) the entire treatment zone depth must be
26 within seven feet from final grade;

27 (2) the distribution system or media must not

1 place a hydraulic head greater than 30 inches above the bottom
2 of the absorption area;

3 (3) the system's absorption area must be original
4 soil; and

5 (4) the system's absorption area must be sized
6 according to subpart 6.

7 C. The minimum vertical separation can be determined
8 by the method described in part 7080.2400, as published in the
9 State Register, volume 31, page 1061, and as subsequently
10 adopted, to meet provisions of part 7081.0080, subpart 4, item
11 C, if allowed by the local unit of government.

12 D. An observation well to measure the height of the
13 seasonally periodically saturated soil beneath the operating
14 system must be installed and monitored according to the
15 operating permit.

16 Subp. 8- 9. Nitrogen reduction. Systems must employ
17 nitrogen mitigation methods to achieve compliance with part
18 7081.0080, subpart 4, item D, and must be monitored in
19 accordance with part 7081.0210, subpart 4.

20 Subp. 9- 10. Phosphorus reduction. Phosphorus mitigation
21 methods must be employed to achieve compliance with part
22 7081.0080, subpart 4, item D E, if natural processes are found
23 inadequate.

24 Subp. 10- 11. Design report. All information required in
25 this part shall be submitted for review and approval by the
26 local unit of government prior to system construction, including
27 all applicable information delineated on a map.

1 7081.0280 CONSTRUCTION REQUIREMENTS.

2 A. MSTS construction must be according to applicable
3 construction requirements of chapter 7080.

4 B. The MSTS designer must observe critical periods of
5 system construction. The designer shall prepare a report of
6 observed construction activities and submit the report to the
7 local unit of government prior to final inspection.

8 7081.0290 OPERATION AND MAINTENANCE.

9 A. System-maintenance New and existing systems must
10 be maintained according to part 7080.2450, as published in the
11 State Register, volume 31, page 1061, and as subsequently
12 adopted, except as modified in this part.

13 B. All external grease interceptors must be routinely
14 inspected to determine the volume of grease present. All
15 external grease interceptors must be ~~cleaned-when-the-volume-of~~
16 ~~external-grease-equals-no-more-than-50-percent-of-the-liquid~~
17 ~~capacity-of-the-tank~~ properly maintained to prevent clogging of
18 downstream piping and system components.

19 C. For all systems constructed after the effective
20 date of this chapter, the designer must complete an operation
21 and maintenance manual and the manual must be ~~approved-by~~
22 submitted to the local unit of government before system
23 operation. The manual shall include a copy of the plans and
24 specifications, as-built drawings of the system, and information
25 to properly operate the system.

26 D. All new systems shall be operated under a local

1 operating permit submitted and approved with the design.

2 E. All groundwater shall be monitored in accordance
3 with part 7081.0210, subpart 4.

4 F. Any operational noncompliance must be immediately
5 corrected and reported by the owner or service provider to the
6 local unit of government.

7 7081.0300 SYSTEM ABANDONMENT.

8 MSTs no longer in use must be abandoned according to part
9 7080.2500, as published in the State Register, volume 31, page
10 1062, and as subsequently adopted.

11 ~~7081.0310-SYSTEM-OWNERSHIP-AND-RESPONSIBILITY.~~

12 ~~Subpart-1.--Ownership.--MSTs-may-be-owned-by-a-sole~~
13 ~~individual,-a-group-of-individuals,-or-a-private-management~~
14 ~~entity-or-publicly-held.--The-owner-or-owners-are-responsible~~
15 ~~for-operation,-maintenance,-repairs,-replacement,-and-compliance~~
16 ~~as-required-by-this-part.~~

17 ~~Subp.-2.--Regulation.--MSTs-serving-multiple-dwellings-must~~
18 ~~be-owned-by-a-legal-and-responsible-entity.--The-entity-must~~
19 ~~have-the-ability-to-perform-and-must-perform-the-following~~
20 ~~functions:~~

21 ~~A.--apply-for-and-obtain-construction-and-operating~~
22 ~~permits;~~

23 ~~B.--ensure-submittal-of-required-reporting-and~~
24 ~~compliance-status-to-the-local-unit-of-government;~~

25 ~~C.--negotiate-contracts-as-necessary;~~

26 ~~D.--develop-administrative-processes;~~

1 E.--impose-fees-for-operation,management,-and
2 replacement-of-the-system,
3 F.--obtain-financing,
4 G.--provide-annual-education-to-users-on-suitable
5 discharges,-and
6 H.--monitor-compliance-with-local-ordinance
7 requirements.

8 Subp.-3.--Certification.--The-owner-or-owners-of-MSTS
9 serving-multiple-dwellings-must-submit-to-the-local-unit-of
10 government-a-certification-of-financial-viability.--The
11 certification-shall-include:

12 A.--a-copy-of-the-title-to-all-MSTS-physical-assets,
13 and

14 B.--the-method-by-which-the-system-operation,
15 maintenance,repairs,-and-replacement-will-be-financed.

16 Subp.-4.--Sale.--The-owner-or-owners-of-MSTS-serving
17 multiple-dwellings-must-not-sell,-assign,-or-divest-the-system
18 without-notification-to-the-local-unit-of-government.--The
19 system-shall-be-free-of-any-liens,-judgments,-or-encumbrances.

20 Subp.-5.--Continuation.--The-owner-of-MSTS-serving-multiple
21 dwellings-shall-provide-a-financial-instrument-or-mechanism-in
22 an-amount-sufficient-to-continue-the-operation,-maintenance,
23 management,-and-repairs-of-the-system-for-a-period-of-one-year
24 if-the-owner-fails-to-fulfill-the-owner's-or-operator's
25 financial-support-of-the-system.